CLAIMS

1. A semiconductor device comprising:

a semiconductor element that has a first surface on which an external connection terminal is formed and a second surface that faces the first surface;

a plate that faces the second surface; and

a resin binder that adheres the second surface and the plate,

wherein the plate has the rigidity higher than that of the semiconductor element;

an outer shape of the plate is larger than that of the semiconductor element; and

the resin binder covers an outer periphery of the semiconductor element.

2. The semiconductor device according to claim 1, wherein the resin binder covers an edge that is formed of a side face and the second surface of the semiconductor element.

3. The semiconductor device according to claim 1, wherein the resin binder covers an entire circumference of the semiconductor element.

4. The semiconductor device according to claim 1, wherein

the resin binder covers only a corner of the semiconductor element.

5. The semiconductor device according to claim 1, wherein a thickness of the semiconductor element is 10 μm or more and 150 μm or less.

6. The semiconductor device according to claim 1, wherein the external connection terminal is provided with a bump.

7. The semiconductor device according to claim 1, wherein the resin binder, in a portion that is interposed between the second surface and the plate, allows the semiconductor element to deform in a thickness direction of the semiconductor element.

8. The semiconductor device according to claim 5, wherein the external connection terminal is provided with a bump, and the resin binder, in a portion that is interposed between the second surface and the plate, allows the semiconductor element to deform in a thickness direction of the semiconductor element.

9. The semiconductor device according to claim 1, wherein the semiconductor element includes a re-wiring layer on the first surface, the re-wiring layer has a surface electrode formed on a surface and an internal electrode formed inside thereof,

and the internal electrode connects the surface electrode and the external connection electrode.

10. The semiconductor device according to claim 9, wherein the surface electrode is provided with a bump.

11. A semiconductor device assembling method in which a semiconductor element and a plate that is higher in the rigidity than the semiconductor element are adhered with a resin binder, the semiconductor element having a first surface on which an external connection terminal is formed and a second surface that faces the first surface, the second surface being adhered to the plate, comprising:

a first step of supplying the resin binder to a plate member including the plate;

a second step of adhering the second surface and the plate in an aligned state with the resin binder; and

a third step of cutting the plate from the plate member.

12. The semiconductor device assembling method according to claim 11, wherein in the second step, the resin binder is formed with an outer periphery of the semiconductor element covered.

13. The semiconductor device assembling method

according to claim 12, wherein by use of a decrease in the viscosity of the resin binder owing to heating, the resin binder is spread to a side face of the semiconductor element to cover the outer periphery.

14. The semiconductor device assembling method according to claim 11, wherein the first step is a step of supplying a resin binder in an amount necessary to cover a side face of the semiconductor element.

15. The semiconductor device assembling method according to claim 11, wherein in the first step the resin binder supplied is liquid, the plate member has a projection that surrounds the plate, and the liquid resin binder is supplied inside of the projection.

16. The semiconductor device assembling method according to claim 11, wherein the resin binder is in sheet, and the first step is a step of adhering the resin binder sheet to the plate member.

17. The semiconductor device assembling method according to claim 11, wherein the plate member has a plurality of the plates, and the second step includes a step of mounting the semiconductor element through the resin binder for each

of the plates that the plate member has and a step of heating the plate member on which the semiconductor elements are mounted.

18. The semiconductor device assembling method according to claim 17, wherein the second step simultaneously carries out the step of mounting and the step of heating.

19. The semiconductor device assembling method according to claim 18, wherein the second step is carried out by use of mounting means of the semiconductor element that are provided with heating means.

20. The semiconductor device assembling method according to claim 11, wherein the semiconductor element has a re-wiring layer on the first surface.